

**PCT**WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau

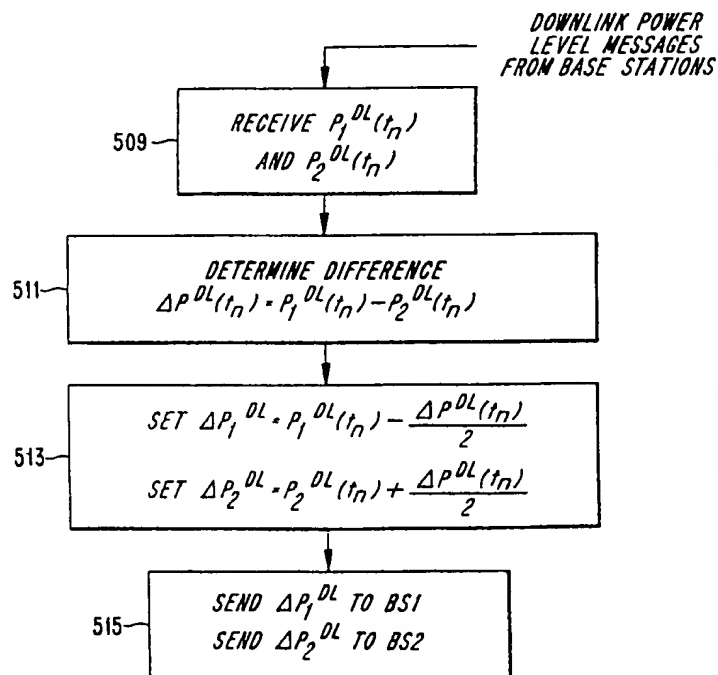
## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : <b>H04B 7/005</b>		<b>A3</b>	(11) International Publication Number: <b>WO 98/56120</b>
			(43) International Publication Date: 10 December 1998 (10.12.98)
(21) International Application Number: <b>PCT/SE98/01077</b> (22) International Filing Date: <b>5 June 1998 (05.06.98)</b> (30) Priority Data: <b>08/870,867</b> <b>6 June 1997 (06.06.97)</b> <b>SE</b> (71) Applicant: <b>TELEFONAKTIEBOLAGET LM ERICSSON</b> <b>[SE/SE]; S-126 25 Stockholm (SE).</b> (72) Inventors: <b>BUTOVITSCH, Paul, Peter; Tranebergsvägen 39,</b> <b>S-167 45 Bromma (SE). SANDIN, Tomas, Fredrik;</b> <b>Upplandsgatan 67, S-113 28 Stockholm (SE). PERSSON,</b> <b>Magnus, Stig; Kruthornsvägen 40, S-192 53 Sollentuna</b> <b>(SE).</b> (74) Agent: <b>ERICSSON RADIO SYSTEMS AB; Common Patent</b> <b>Dept., S-164 80 Stockholm (SE).</b>		(81) Designated States: <b>AL, AM, AT, AU, AZ, BA, BB, BG, BR,</b> <b>BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE,</b> <b>GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ,</b> <b>LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW,</b> <b>MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ,</b> <b>TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent</b> <b>(GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent</b> <b>(AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent</b> <b>(AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT,</b> <b>LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI,</b> <b>CM, GA, GN, ML, MR, NE, SN, TD, TG).</b>	
		<b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims</i> <i>and to be republished in the event of the receipt of amendments.</i>	
		(88) Date of publication of the international search report: 10 June 1999 (10.06.99)	

(54) Title: TRANSMIT POWER CONTROL IN A RADIO COMMUNICATION SYSTEM

## (57) Abstract

Methods of controlling the power levels of transmitted signals in telecommunication systems are described. For example, a remote terminal measures the quality of a received signal, either by determining the frame error rate or the bit error rate, and reports its quality measurement to a network by sending a quality message. The network causes the signal transmitters to adjust their transmit power levels appropriately. Faster power control methods may be combined with slower power control methods for downlink (network to remote terminal) transmissions in various communications scenarios, such as soft hand-overs.



**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakhstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/SE 98/01077

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 6 H04B7/005

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 H04B H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 097, no. 007, 31 July 1997 & JP 09 074378 A (NEC CORP), 18 March 1997	1, 4, 6, 8, 11-13
Y	see abstract & US 5 771 451 A see column 6, line 1 - column 7, line 23	2, 3, 9, 10
Y	EP 0 682 418 A (NIPPON TELEGRAPH & TELEPHONE) 15 November 1995	2, 3, 9, 10
A	see column 9, line 50 - column 10, line 2; claim 3	15-17, 21, 22
A	WO 95 07012 A (NOKIA TELECOMMUNICATIONS OY ; RAUTIO LA MARKKU (FI)) 9 March 1995  see page 8, line 17 - page 9, line 11 see page 11, line 3 - line 18	6, 7, 13, 14, 18, 19, 23, 24
	-/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

15 April 1999

Date of mailing of the international search report

26/04/1999

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Schut, G

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/SE 98/01077

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>WO 97 08911 A (HAEMAELAEINEN SEPPO ;NOKIA TELECOMMUNICATIONS OY (FI); HAEKKINEN H) 6 March 1997 see page 6, line 16 - line 32 see page 10, line 24 - page 11, line 24 see page 12, line 9 - line 27 ---</p>	15,20
A	<p>EP 0 288 904 A (MOTOROLA INC) 2 November 1988 see abstract see column 8, line 36 - column 9, line 12 ---</p>	15
P,X	<p>WO 98 11677 A (QUALCOMM INC) 19 March 1998  see column 8, line 17 - column 10, line 30 see column 12, line 21 - column 13, line 12 see column 19, line 31 - column 20, line 2 -----</p>	1-4,6, 8-11,13

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/SE 98/01077

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0682418	A	15-11-1995	JP 8032515 A	02-02-1996
			CA 2149095 A,C	13-11-1995
			CN 1126930 A	17-07-1996
			KR 143837 B	01-08-1998
			US 5566165 A	15-10-1996
WO 9507012	A	09-03-1995	FI 933865 A	04-03-1995
			AU 682718 B	16-10-1997
			AU 7538794 A	22-03-1995
			CN 1132585 A,B	02-10-1996
			EP 0741955 A	13-11-1996
			JP 9504664 T	06-05-1997
			US 5752197 A	12-05-1998
WO 9708911	A	06-03-1997	AU 3260595 A	19-03-1997
			EP 0872141 A	21-10-1998
			NO 980874 A	27-04-1998
EP 0288904	A	02-11-1988	US 4797947 A	10-01-1989
			AT 148293 T	15-02-1997
			CA 1286040 A	09-07-1991
			CN 1030336 A,B	11-01-1989
			DE 3855764 D	06-03-1997
			DE 3855764 T	24-07-1997
			DK 590788 A	03-11-1988
			ES 2097734 T	16-04-1997
			FI 885253 A,B,	14-11-1988
			IN 171381 A	26-09-1992
			JP 1503270 T	02-11-1989
			JP 2797108 B	17-09-1998
			KR 9600527 B	08-01-1996
			MX 164994 B	13-10-1992
			NO 175695 B	08-08-1994
			WO 8808650 A	03-11-1988
WO 9811677	A	19-03-1998	AU 4413997 A	02-04-1998

**This Page Blank (uspto)**